in Example 2, where 35 parts of an SIS block copolymer (Sol T 193B), 40 parts of hydrogenated dicyclopentadiene resin (Escorez 5340), 10 parts of aromatic reinforcing resin (Endex 155), 15 parts of naphthenic/paraffinic mineral oil, and antioxidant were used. This is done to achieve a good heat resistant adhesive, as noted. The aromatic reinforcing resin (Endex 155) from Hercules is a tackifying resin, and not a polymer. See attached brochure from Hercules, which specifically includes Endex 155 in their spectrum of hydrocarbon resins or tackifying resins.

In contrast, the present invention differs from Alper et al. in that Claims 1, 20 and 22 all recite adhesives wherein said total tackifying resin having a glass transition temperature of greater than 65 °C is less than total polymer content, while Claim 30 recites an adhesive wherein said total tackifying resin having a softening temperature of greater than 140 °C is less than total polymer content. See Examples 1-10.

Based on the above, Applicants submit that Alper et al. does not anticipate the present invention and Applicants respectfully requested that the 35 U.S.C. § 102 (b) rejection should be withdrawn.

B. § 103 (a) Rejection

As discussed above, the present invention differs from Alper et al. in that Claims 1, 20 and 22 all recite adhesives wherein said total tackifying resin having a glass transition temperature of greater than 65 °C is less than total polymer content, while Claim 30 recites an adhesive wherein said total tackifying resin having a softening temperature of greater than 140 °C is less than total polymer content. See Examples 1-13. In addition, the good heat resistance is preserved. See test results in Tables I-VIII. Thus, Alpers et al teach the use of more tackifying resin than polymer. Applicants submit that Alper et al. actually teach away from the present invention. There is no teaching or motivation in Alper et al to arrive at the present invention, where adhesive compositions comprise more polymer than tackifying resin. Applicants respectfully request that rejection based on § 103 (a) should be withdrawn.

C. Conclusion

In conclusion, the adhesive compositions of the present invention are novel and non-obvious in view of Alper et al. It is submitted that the application is in condition for allowance. Reconsideration of the rejection is respectfully requested and allowance and passage to issue of Claims 1-30 at an early date is solicited.

Respectfully submitted,

8/23/01
Date

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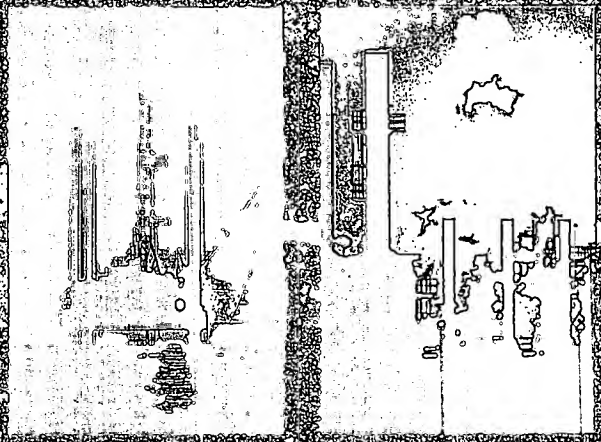
FILE

HERCULES

# SPECTRUM OF HYDROCARBON RESINS



HERCULES

## TYPICAL PROPERTIES

| | Endex® 155 | Endex 160 | Kristalex® 1120 | Kristalex® 3070 | Kristalex 3085 | Kristalex 3100 | Kristalex 3115 |
|---|---|---|---|---|---|---|---|
| Softening point, R&B, °C | 152 | 160 | 120 | 70 | 85 | 100 | 115 |
| Color, Gardner | YID 7 | YID 7 | YID 7 | YID 8 | YID 8 | YID 5 | YID 5 |
| Melt viscosity, °C | | | | | | | |
| 10 poises | 237 | 245 | 193 | 115 | 139 | 152 | 182 |
| 100 poises | 198 | 210 | 161 | 94 | 119 | 128 | 153 |
| 1,000 poises | 177 | 182 | 141 | 84 | 99 | 115 | 135 |
| Tg, °C (onset) | 100 | 105 | 56 | 27 | 36 | 46 | 64 |
| MMAP, °C | 16 | 18 | 5 | 0.4 | 1.5 | 4 | 3 |
| DACP, °C | –23 | –15 | –35 | <–50 | <–50 | <–50 | <–50 |
| OMSCP, °C | 121/115 | 155/138 | >180 | 9/7 | 44/39 | 60/55 | 123/107 |
| $M_z$ | 14,300 | 19,500 | 7,300 | 1,300 | 1,990 | 2,700 | 4,100 |
| $M_w$ | 8,600 | 11,150 | 2,950 | 875 | 1,200 | 1,600 | 2,500 |
| $M_n$ | 2,900 | 3,880 | 775 | 580 | 600 | 800 | 1,150 |
| $M_w/M_n$ | 3.0 | 2.9 | 3.8 | 1.5 | 2.0 | 2.0 | 2.2 |

### Endex® Resins

These resins are manufactured as a copolymer of modified styrenes, with softening points ranging from 152-160°C. The specific molecular weight and solubility of these resins make them particularly suited to reinforce the styrenic domains of block polymers in hot-melt and pressure-sensitive adhesive applications.

### Kristalex® Resins

These resins are water-white and highly color stable, with softening points ranging from 70-140°C. They are manufactured as a copolymer of varying ratios of pure monomers. This results in products ranging from highly aliphatic-soluble to highly aliphatic-insoluble. Often, these higher aliphatic-insoluble resins find utility as reinforcing resins for the styrenic domain of block copolymer systems. Other uses include paints, caulking compounds, laminating and hot-melt adhesives, textile dry sizes, coatings, and plastic modification.

### Piccolastic® Resins

These resins are manufactured from styrenic monomers, with softening points ranging from 5-125°C. The low-molecular-weight versions are useful as plasticizers and as paper saturants. Higher softening versions are used in adhesive formulations, shoe construction, hot-melt applications, investment castings, and in xerographic applications. In block copolymer systems, they would be compatible with the styrenic phase but would not be expected to generate significant tack.

## PURE MONOMER RESINS

| Kristalex 5140 | Piccolastic® A5 | Piccolastic A75 | Piccolastic D125 | Piccotex® 75 | Piccotex LC | Piccotex 100 | Piccotex 120 |
|---|---|---|---|---|---|---|---|
| 140 | 5 | 75 | 125 | 75 | 90 | 98 | 118 |
| YID 7 | 2 | 1 | 2 | YID 10 | YID 10 | YID 8 | YID 7 |
| | | | | | | | |
| 219 | 44 | 118 | 265 | 119 | 140 | 155 | 185 |
| 182 | 30 | 98 | 185 | 100 | 113 | 130 | 155 |
| 160 | 23 | 87 | 158 | 75 | 101 | 110 | 133 |
| 88 | — | 28 | 60 | 29 | 43 | 42 | 68 |
| 9 | –4 | 6 | 13 | 1 | 2 | 6 | 10 |
| –48 | <–50 | <–50 | –32 | <–50 | <–50 | <–50 | –35 |
| >175 | 140/–5 | 93/72 | >180 | –12/–22 | 0/–13 | 27/18 | 54/51 |
| 9,590 | 510 | 2,450 | 207,000 | 1,700 | 2,400 | 4,300 | 6,400 |
| 4,800 | 430 | 1,350 | 50,400 | 1,100 | 1,500 | 2,650 | 3,800 |
| 1,450 | 360 | 670 | 1,550 | 680 | 850 | 1,200 | 1,600 |
| 3.3 | 1.2 | 2.0 | 32.5 | 1.6 | 1.8 | 2.2 | 2.4 |

### Piccotex® Resins

These products are manufactured as a copolymer of modified styrenes that result in a range of softening points from 75-120°C. Aliphatic solubility decreases proportionally as softening point increases. They are used in coatings, adhesives, as dry size agents, and in baking enamels.

### *General Product Characteristics*

These are neutral resins with <1 acid number and <2 saponification number. The relative degree of unsaturation can vary, with bromine numbers ranging from 2-8. In general, the specific gravity as measured at 25°C will be 1.04 to 1.07. Flashpoints as measured by COC are >450°F (except for Piccolastic A5 at 330°F). Because of their inherent stability, these products do not contain an antioxidant. For specific data on individual products, refer to the product data sheet.